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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,641	02/04/2004	Richard E. Raby	59525US002	3710
32692	7590	07/13/2007	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			BUMGARNER, MELBA N	
			ART UNIT	PAPER NUMBER
			3732	
			NOTIFICATION DATE	DELIVERY MODE
			07/13/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/771,641	RABY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Melba Bumgarner	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 April 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-82 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/22/07, 5/3/07</u> | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-82 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not describe a method including the step of computing a location of a planar guide based on a placement of an orthodontic appliance. The original and still dependent claims show "displaying the planar guide" coming from stored (planar guide) data, not computation based on a placement of an orthodontic appliance. The specification does not describe the guide control module being a computing device.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3-11, 22, 24, 27, 28, 30, 38, 42-50, 58, 60, 63, 64, 74, and 76-78 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear as to what is a midsagittal plane, a midlateral plane, a midfrontal plane, occlusal-gingival axis of the *orthodontic appliance* and coordinate system associated with the orthodontic appliance, i.e. there is no structure given to the orthodontic appliance to identify the planes and axis.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-13, 18, 19, 27, 28, 31-35, 37-55, 67-71, 73-78, and 80-82 are rejected as understood, under 35 U.S.C. 102(b) as being anticipated by Chapoulaud et al. (2002/0028417).  
  
Chapoulaud et al. disclose a method, system and medium comprising rendering a digital representation of a dental arch within a three-dimensional environment [0014], and displaying a planar guide within the three-dimensional environment as a visual aid to a practitioner in the placement of an orthodontic appliance [0013](figure 4), which planar guide is computer-determined as to location (understood to be position and/or orientation). The planar guide is displayed proximate surface of a tooth. The planar guide is generated relative to a coordinate system. Patentable weight is not given to the inferentially claimed elements. The planar guides are displayed as semi-transparent two-dimensional plane within the three-dimensional environment comprising at least two lines. Chapoulaud et al. show storing data that describes attributes for orthodontic appliances [0084] that include parameters such as torque angles. Stored three-dimensional data of the teeth would include dimensions and distances of teeth. Chapoulaud et al. show displaying reference markers of points or tic marks at discrete intervals. A parallel object can be placed in the three-dimensional environment such that it is a constant

distance to the displayed contour lines on the guide. Chapoulaud et al. show orthodontic appliance of a bracket. Chapoulaud et al. show the computing device coupled via network to database (figure 1).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 14-17, 20-26, 36, 56-64, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapoulaud et al. Chapoulaud et al. disclose a method and system that shows the limitations as described above; however, they do not show planar guides having different colors. Chapoulaud et al. teaches display of the three-dimensional teeth with each tooth in a different color. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and system to have the planar guides in different colors in order to be able to identify them by color in view of Chapoulaud et al. Chapoulaud et al. show adjusting the color and transparency as noted by adjustments in brightness and shading disclosed. It would have been obvious to one of ordinary skill in the art to store planar guide data of attributes received input from the user. It would have been obvious to one of ordinary skill in the art to size or scale the guides with respect to the displayed tooth or teeth. It would have been an obvious matter of choice to one of ordinary skill in the art to visually enclose a volume of two planar guides.

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9. Claims 29, 30, 65, 66, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapoulaud et al. in view of Kopelman et al. (2003014509). Chapoulaud et al. disclose a method and system that shows the limitations as described above; however, they do not show data of rules for orthodontic appliance. Kopelman et al. teach a method and system comprising data 110 of rules for applying the orthodontic appliance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method and system to comprises data of rules in order to obtain a desired outcome of positioning and orientation in view of Kopelman et al.

***Response to Arguments***

10. Applicant's arguments filed April 26, 2007 have been fully considered but they are not persuasive. Applicant argues that the prior art does not show a method that include computing a location of a planar guide based on a placement of an orthodontic appliance within a 3D environment relative to a dental arch; however, it is noted that applicant's disclosure also does not contain such words. One of the ordinary level of skill in the pertinent art, given applicant's disclosure will find that the prior art shows the claimed limitations and likewise the prior art should not be expected to explicitly state such a step left for broad interpretation. One of ordinary skill in the art would know that the system would have performed such function in order to display such planar guide(s) in 3D environment. Terminology such as midsagittal and midfrontal are used to describe tooth anatomy; however, such terms are ordinarily defined when used to relate to components such as orthodontic bracket. One of ordinary skill in the art does not know what is meant by the midsagittal plane of an orthodontic appliance such as a force module. It is noted that the claims are so broadly written that the only visual aid claimed is

display of planar guide(s) with possible adjustments in 3D environment in the method claims and a computer and software to display such planar guide(s) in the product claims.

***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melba Bumgarner whose telephone number is 571-272-4709. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached at 571-272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melba Bumgarner  
Primary Examiner